

WHAT IS CLAIMED IS:

1. A gate driving circuit, comprising:

a voltage source and a current source which drive a control electrode of a voltage-driven type switching element;

5 a voltage source controller configured to create a voltage drive signal which controls the voltage source using a control signal given from the outside;

a delay control signal creation unit configured to create a delay control signal having a certain delay time with respect to the control signal;

10 a reference signal creation unit configured to create a voltage reference signal by waveform shaping of the delay control signal;

a voltage detector configured to detect a voltage between main electrodes of the voltage-driven type switching element and output a principal voltage detection signal; and

15 a comparator configured to compare the principal voltage detection signal with the voltage reference signal and output a comparison result signal which controls the current source.

2. A gate driving circuit, comprising:

20 a voltage source and a current source which drive a control electrode of a voltage-driven type switching element;

a voltage source controller configured to create a voltage drive signal which controls the voltage source using a control signal given from the outside;

25 a delay control signal creation unit configured to create a delay control signal having a certain delay time with respect to the control signal;

a reference signal creation unit configured to create a voltage reference

signal by waveform shaping of the delay control signal;

a voltage detector configured to detect a voltage between main electrodes of the voltage-driven type switching element and output a principal voltage detection signal;

5 a comparator configured to compare the principal voltage detection signal with the voltage reference signal and output a comparison result signal which controls the current source;

a transition period detector configured to detect a switching transition period by using the control signal; and

10 a selective signal pass-through unit for allowing the comparison result signal to pass through only in the switching transition period and attenuating the comparison result signal in a steady period, the selective signal pass-through unit being connected to a next stage of the comparator.

3. The gate driving circuit of claim 1 or 2, wherein an output terminal of the
15 voltage source is connected to the control electrode of the voltage-driven type switching element through a resistor, and an output terminal of the current source is connected to the control electrode of the voltage-driven type switching element.

4. The gate driving circuit of claim 3, wherein, in the delay control signal
20 creation unit, the delay time of the delay control signal is variably set in accordance with a value of the resistor.

5. The gate driving circuit of claim 1 or 2, wherein, in the reference signal creation unit, a second order low-pass filter is used.